Configuring the EN-4000's 802.11 Wireless Card

The EN-4000 is the newest member of Encore Networks' family of routers. It provides wireless and cabled connections to a local area network (LAN) and to peripheral devices and remote devices.

The 802.11 wireless card was installed in the internal card slot (also called the embedded card slot) before the EN-4000 was shipped. Place the EN-4000 in its network location, and attach antennas to the ports labeled MAIN 1 and AUX 1, to support the internal wireless card. (For details, see the *EN-4000™ Quick Installation Guide*.) The EN-4000 supports 802.11a, b, and n wireless protocols.

After logging in to the EN-4000 Management System, follow the procedures in this discussion to configure the EN-4000's wireless card as a wireless access point or as a wireless client.

Note: For additional details of EN-4000 configuration, see *Configuring General Settings for the EN-4000*.

11.1 Configuring the 802.11 Wireless Card for the Network

The EN-4000's 802.11 wireless card can use one of two operating modes:

- It can function as an access point. See *Configuring the 802.11 Wireless Card as an Access Point*, on page 2.
- It can function as a wireless client. See *Configuring the 802.11 Wireless Card as a Wireless Client*, on page 10.

Note: A single wireless card can support only one mode at a time.

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11.1.1 Configuring the 802.11 Wireless Card as an Access Point

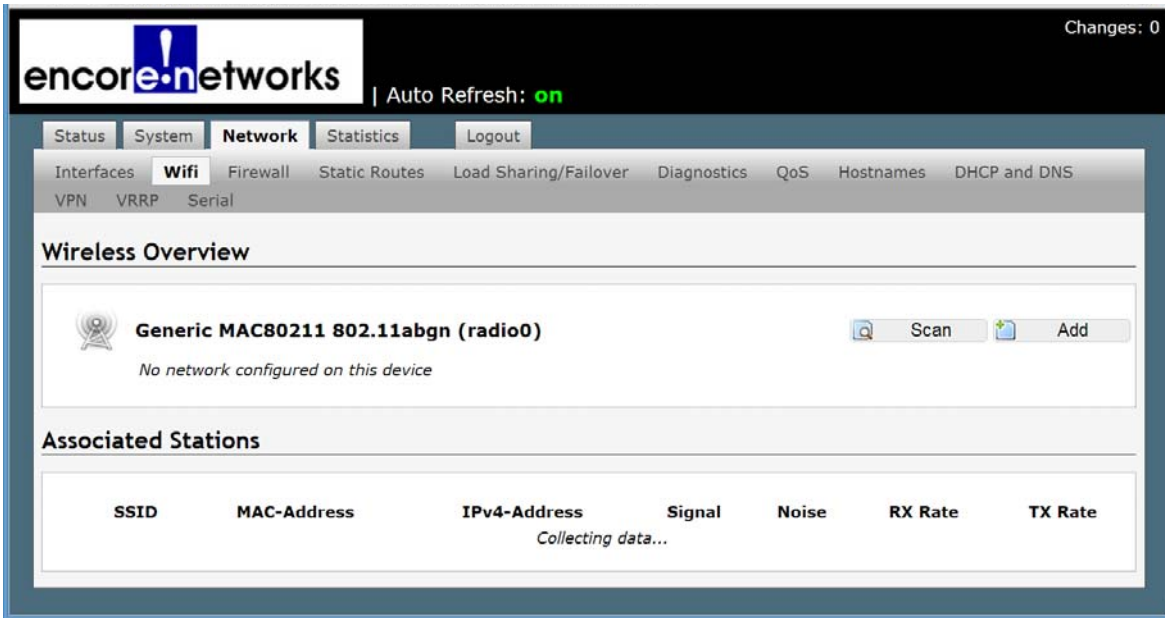
To configure the 802.11 wireless card as an access point, use the steps in the following procedure.

1 On the EN-4000 Management System, select the **Networks** tab; then select the **Wifi** tab.

❖ If the EN-4000 contains a wireless card, the Overview Screen for Wireless Configuration is displayed (Figure 11-1).

This screen provides basic information about the card's wireless specifications; it displays the MAC ID and supported versions of 802.11 (in Figure 11-1, **802.11abgn**). If the wireless card has already been configured, the display also lists the card's mode and related specifications.

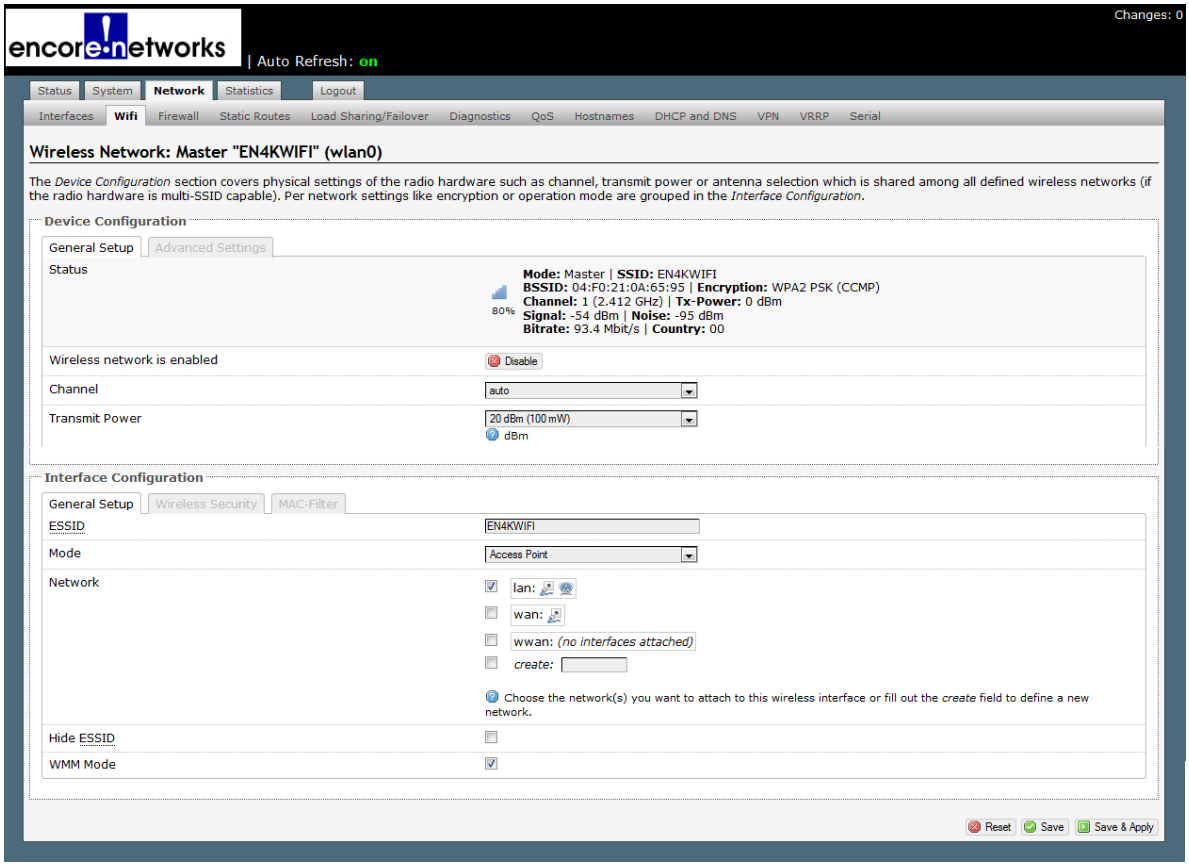
Figure 11-1. Overview Screen for Wireless Configuration



2 In the row for the new wireless card, select the **Add** button.

❖ The Wireless Access Point Initial Configuration Screen is displayed (Figure 11-2).

Figure 11-2. Wireless Access Point Initial Configuration Screen



Note: Configure the fields in the lower half of this screen first (under the heading **Interface Configuration**).

3 Under the heading **Interface Configuration**, make sure the **General Settings** tab is displayed, and do the following:

a For the **Mode**, select **Access Point**.

b In the field labeled **ESSID**, type a name for the access point. (In this example, that name is **EN4KWIFI**.)

c Select the box to indicate that the **Network** is a **LAN**.

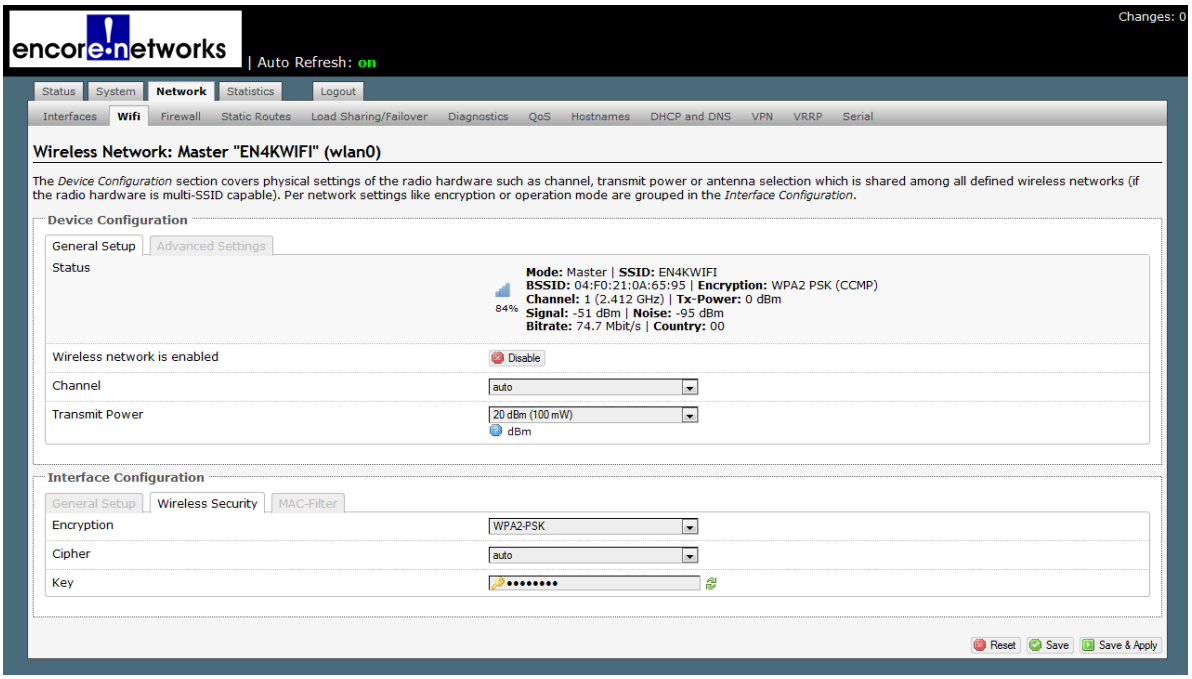
d Leave the field labeled **Hide ESSID** blank.

e Make sure the box for **WMM Mode** contains a check mark.

4 Under the heading **Interface Configuration**, select the **Wireless Security** tab.

❖ The Wireless Configuration Screen, Wireless Security, is displayed (Figure 11-3).

Figure 11-3. Wireless Configuration Screen, Wireless Security


Changes: 0
encore!networks
| Auto Refresh: on
Status System Network Statistics Logout
Interfaces Wifi Firewall Static Routes Load Sharing/Failover Diagnostics QoS Hostnames DHCP and DNS VPN VRRP Serial
Wireless Network: Master "EN4KWIFI" (wlan0)
The Device Configuration section covers physical settings of the radio hardware such as channel, transmit power or antenna selection which is shared among all defined wireless networks (if the radio hardware is multi-SSID capable). Per network settings like encryption or operation mode are grouped in the Interface Configuration.
Device Configuration
General Setup Advanced Settings
Status
84%
Mode: Master | SSID: EN4KWIFI
BSSID: 04:F0:21:0A:65:95 | Encryption: WPA2 PSK (CCMP)
Channel: 1 (2.412 GHz) | Tx-Power: 0 dBm
Signal: -51 dBm | Noise: -95 dBm
Bitrate: 74.7 Mbit/s | Country: 00
Wireless network is enabled
Disable
Channel
auto
Transmit Power
20 dBm (100 mW)
dBm
Interface Configuration
General Setup Wireless Security MAC-Filter
Encryption
WPA2-PSK
Cipher
auto
Key
Reset Save Save & Apply

5 On that screen, set the following values:

a Make sure the **Encryption** is **WPA2-PSK**.

b Make sure the **Cipher** is set to **Auto**.

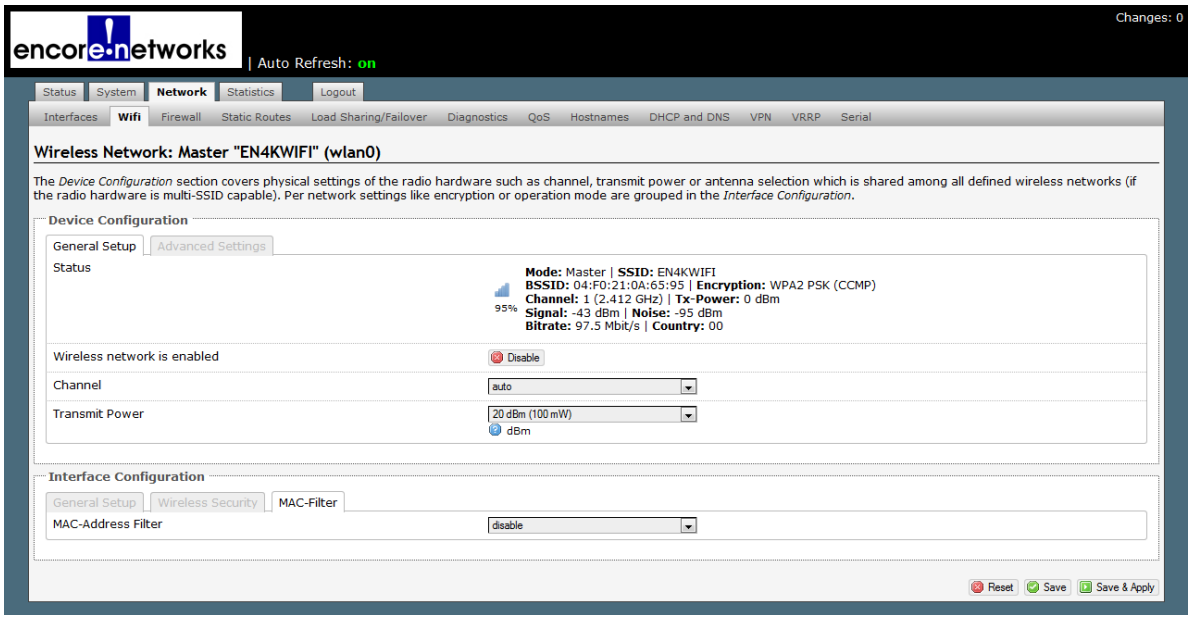
Note: In auto mode, the cipher uses CCMP (AES). Other protocols, such as TKIP, might appear in the list, but 802.11n recommends CCMP (AES).

c For the **Key** field, specify a password for users to gain wireless access through this Access Point.

6 Under the heading **Interface Configuration**, select the **MAC Filter** tab.

❖ The Wireless Configuration Screen, MAC Filter, is displayed (Figure 11-4).

Figure 11-4. Wireless Configuration Screen, MAC Filter


Changes: 0
encore!networks
| Auto Refresh: on
Status System Network Statistics Logout
Interfaces Wifi Firewall Static Routes Load Sharing/Failover Diagnostics QoS Hostnames DHCP and DNS VPN VRRP Serial
Wireless Network: Master "EN4KWIFI" (wlan0)
The Device Configuration section covers physical settings of the radio hardware such as channel, transmit power or antenna selection which is shared among all defined wireless networks (if the radio hardware is multi-SSID capable). Per network settings like encryption or operation mode are grouped in the Interface Configuration.
Device Configuration
General Setup Advanced Settings
Status
95%
Mode: Master | SSID: EN4KWIFI
BSSID: 04:F0:21:0A:65:95 | Encryption: WPA2 PSK (CCMP)
Channel: 1 (2.412 GHz) | Tx-Power: 0 dBm
Signal: -43 dBm | Noise: -95 dBm
Bitrate: 97.5 Mbit/s | Country: 00
Wireless network is enabled
Disable
Channel
auto
Transmit Power
20 dBm (100 mW)
dBm
Interface Configuration
General Setup Wireless Security MAC-Filter
MAC-Address Filter
disable
Reset Save Save & Apply

7 On that screen, make sure the **MAC Address Filter** is **disabled**.

Note: You can enable that filter if you wish to allow or block specific MAC addresses.

8 In the top portion of the screen, under **Device Configuration**, make sure the **General Setup** tab is displayed. (Note that the **Status** display is only for information; it cannot be changed.) Then do the following:

a Make sure the **Wireless Network is Enabled**. (Do NOT select Disable.)

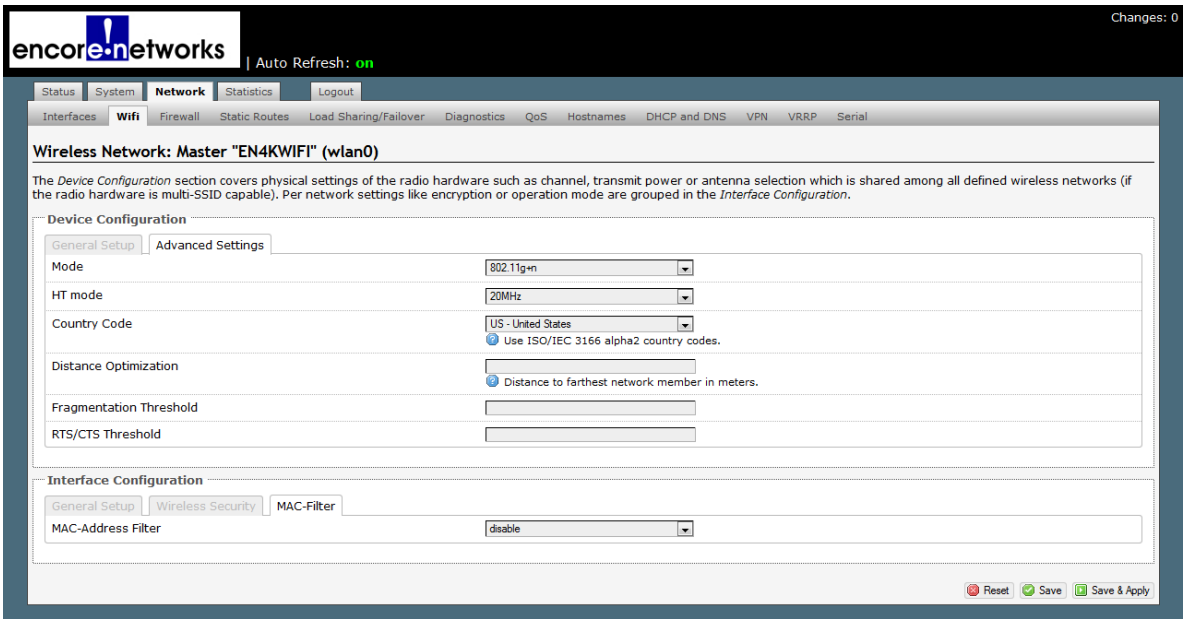
b Leave the **Channel** on **Auto**.

c For **Transmit Power**, select the maximum value allowed under your region's regulations.

9 Under the heading **Interface Configuration**, select the **Advanced Settings** tab.

❖ The Wireless Configuration Screen, Advanced Settings, is displayed (Figure 11-5).

Figure 11-5. Wireless Configuration Screen, Advanced Settings



10 On that screen, do the following:

a Select the **Mode** that provides the highest throughput for your region. **802.11n** is the preferred mode when it is available.

b Select a range that works well for **HT Mode** in your area.

Note: If there are few wireless networks in your area, and if all the devices that will connect to this access point can support 40 MHz, then this access point can use **40 MHz**. If several wireless networks are in the same area, **20 MHz** works better.

c Set the **Country Code** for the country where the device is located (to conform to regulations for use of frequencies, etc.).

d Leave the **Distance Optimization** field blank.

e Leave the **Fragmentation Threshold** field blank.

f Leave the **RTS/CTS Threshold** field blank.

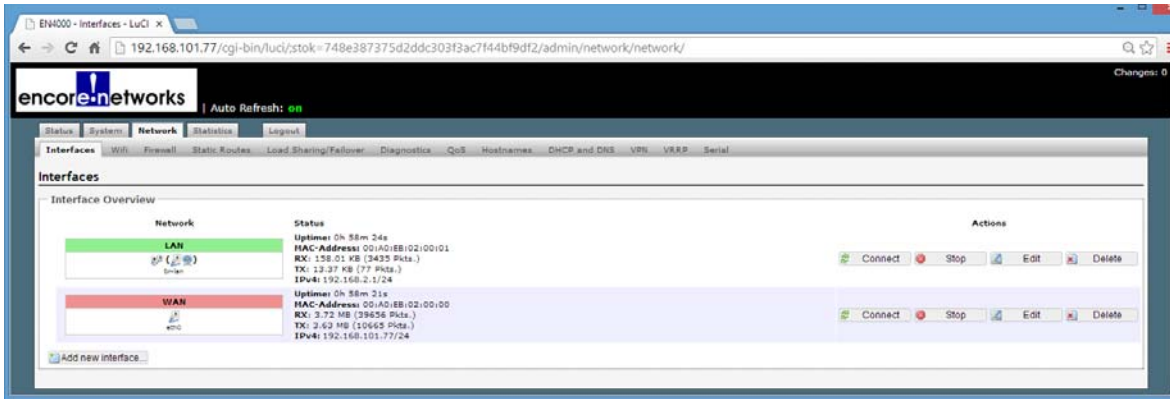
11 Select the **Save & Apply** button.

12 When the EN-4000 is configured as an access point, the 802.11 wireless interface and the LAN interface can be bridged, to allow the user to connect through Ethernet or through 802.11 wireless. Do the following:

a On the EN-4000 Management System, select **Network**, then **Interfaces**.

❖ The EN-4000 Interfaces Screen is displayed (Figure 11-6).

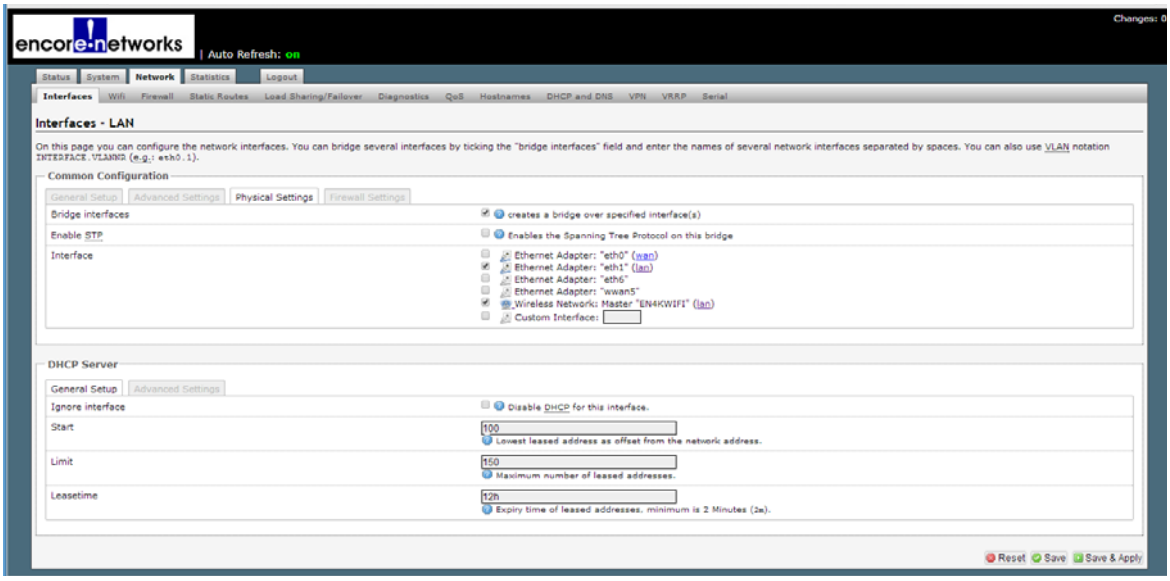
Figure 11-6. EN-4000 Interfaces Screen



b In the LAN row, select the **Connect** button.

❖ The LAN Interfaces Screen is displayed (Figure 11-7).

Figure 11-7. LAN Interfaces Screen

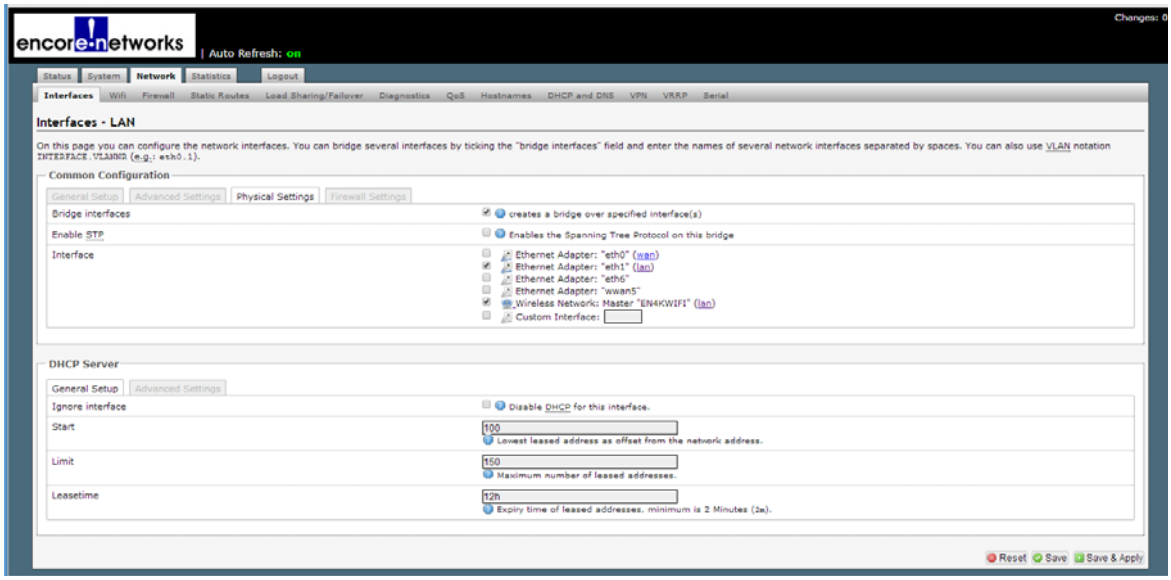


Note: The DHCP server assigns an IP address to each device that connects to this EN-4000 over a wireless connection or over an Ethernet LAN. (The DHCP server's configuration is shown in the lower portion of Figure 11-7.)

c On the LAN Interfaces Screen, select the **Physical Settings** tab.

❖ The LAN Interfaces Physical Settings Screen is displayed (Figure 11-8).

Figure 11-8. LAN Interfaces Physical Settings Screen



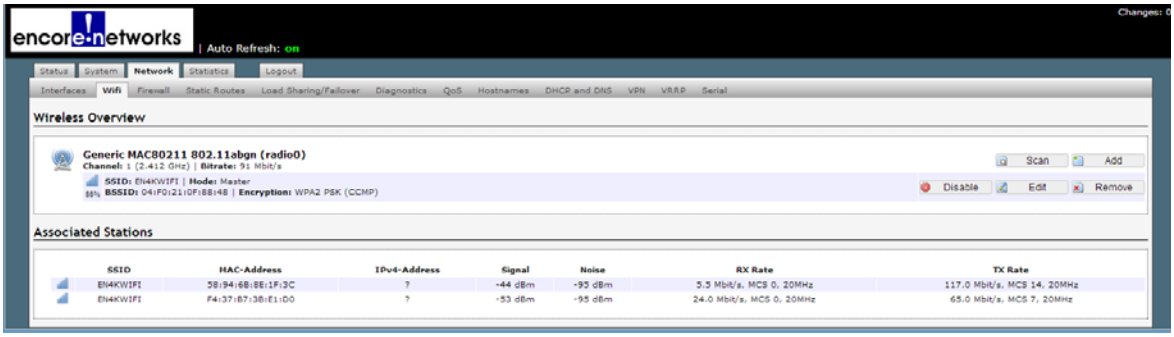
d On that screen, make sure the following settings apply:

- **Bridge Interfaces**: Make sure **Creates a bridge over specified interfaces** is selected.
- **Interface**: Make sure **Ethernet Adapter "eth1" (LAN)** is selected, and make sure **Wireless Network Master *** (LAN)** is selected, where ******* represents the name of the client interface you created in Step 3b on page 3. (******* is **EN4KWIFI** in Figure 11-8.)

e Select the **Save & Apply** button.

❖ The bridge is saved, and the Wireless Overview Screen is displayed (Figure 11-9). Note that the list of associated stations includes two interfaces now.

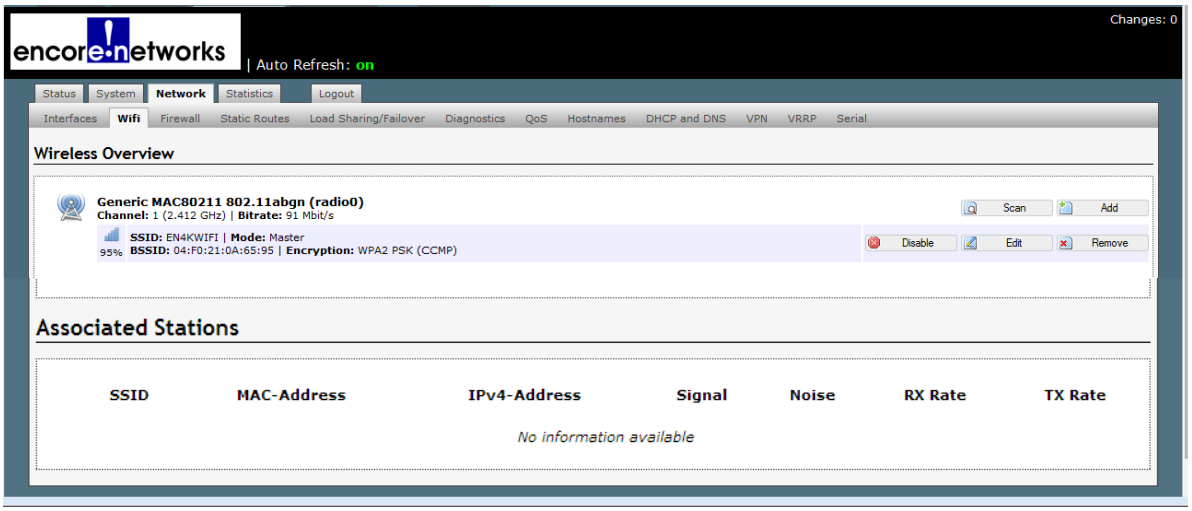
Figure 11-9. Wireless Overview Screen



13 On the EN-4000 Management System, select the **Network** tab; then select the **Wifi** tab.

❖ The Wireless Access Point Configuration Screen is redisplayed, showing the completed configuration for the wireless card as a wireless access point (Figure 11-10).

Figure 11-10. Wireless Access Point Configuration Screen Completed



14 Open a device that will use this access point to reach the wireless network. That can be any mobile or static device with 802.11 wireless capability. Use that device's system to connect to the wireless access point.

Note: If you are connecting another device to this access point, that device must be an 802.11 wireless client. If that other device is an EN-4000, you can connect that device to this access point by doing the following on that EN-4000's management system:

a Select the **Network** tab,

b Then select the **Wifi** tab.

c Then select the **Scan** Button.

❖ A list displays 802.11 wireless networks within range.

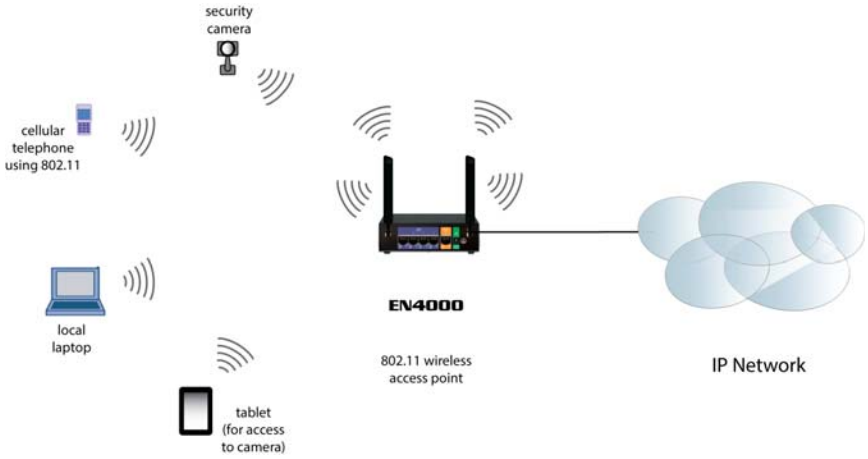
d In that list, find the access point's network and select **Join Network**.

Note: For details, see step 1 through step 3 and Figure 11-14 and Figure 11-15, on page 10 through page 11 of *Configuring the 802.11 Wireless Card as a Wireless Client*.

❖ That device connects to the access point and can now access the wireless network.

Figure 11-11 shows some 802.11 wireless devices connected to the EN-4000 access point.

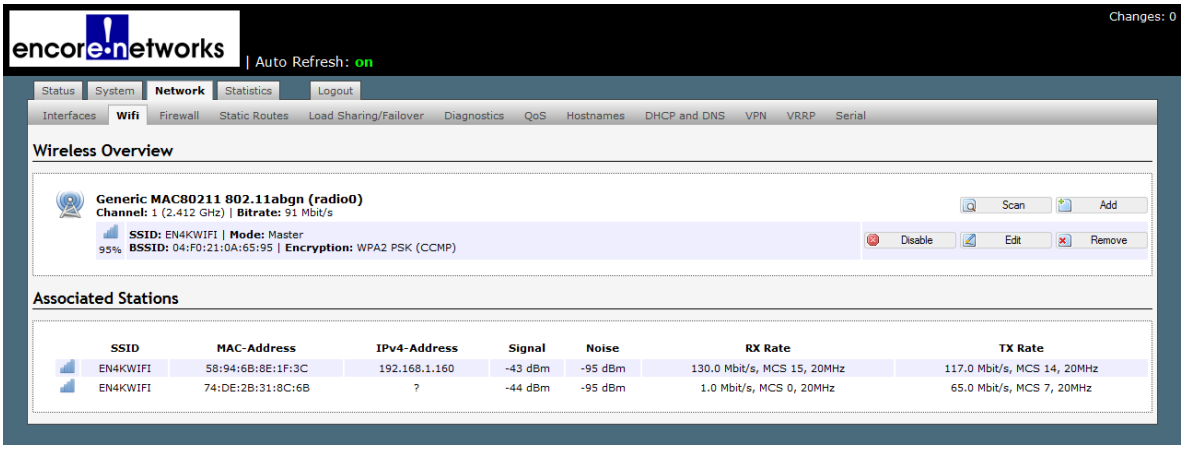
Figure 11-11. EN-4000 as Wireless Access Point



15 On the EN-4000 that is the wireless access point, select the **Network** tab, then the **Wifi** tab.

❖ The Wireless Overview Screen is displayed (Figure 11-12). The list of associated stations includes the IP address of an EN-4000 that connected in step 14.

Figure 11-12. Wireless Overview Screen
Listing Associated Stations


encore networks
Auto Refresh: on
Changes: 0
Status System Network Statistics Logout
Interfaces Wifi Firewall Static Routes Load Sharing/Failover Diagnostics QoS Hostnames DHCP and DNS VPN VRRP Serial
Wireless Overview
Generic MAC80211 802.11abgn (radio0)
Channel: 1 (2.412 GHz) | Bitrate: 91 Mbit/s
Scan Add
95%
SSID: EN4KWIFI | Mode: Master
BSSID: 04:F0:21:0A:65:95 | Encryption: WPA2 PSK (CCMP)
Disable Edit Remove
Associated Stations
SSID MAC-Address IPv4-Address Signal Noise RX Rate TX Rate
EN4KWIFI 58:94:6B:8E:1F:3C 192.168.1.160 -43 dBm -95 dBm 130.0 Mbit/s, MCS 15, 20MHz 117.0 Mbit/s, MCS 14, 20MHz
EN4KWIFI 74:DE:2B:31:8C:6B ? -44 dBm -95 dBm 1.0 Mbit/s, MCS 0, 20MHz 65.0 Mbit/s, MCS 7, 20MHz

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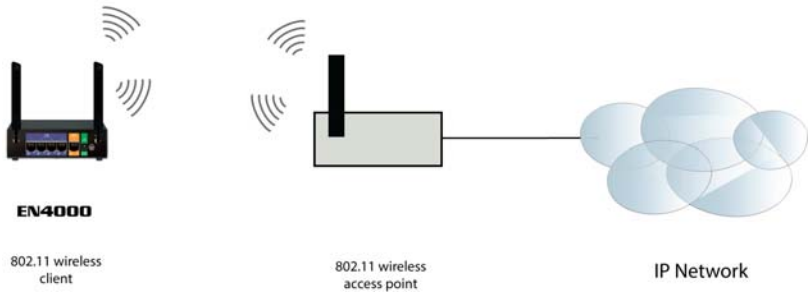
11.1.2 Configuring the 802.11 Wireless Card as a Wireless Client

Figure 11-13 shows the EN-4000 as a wireless client.

Figure 11-13. EN-4000 as Wireless Client



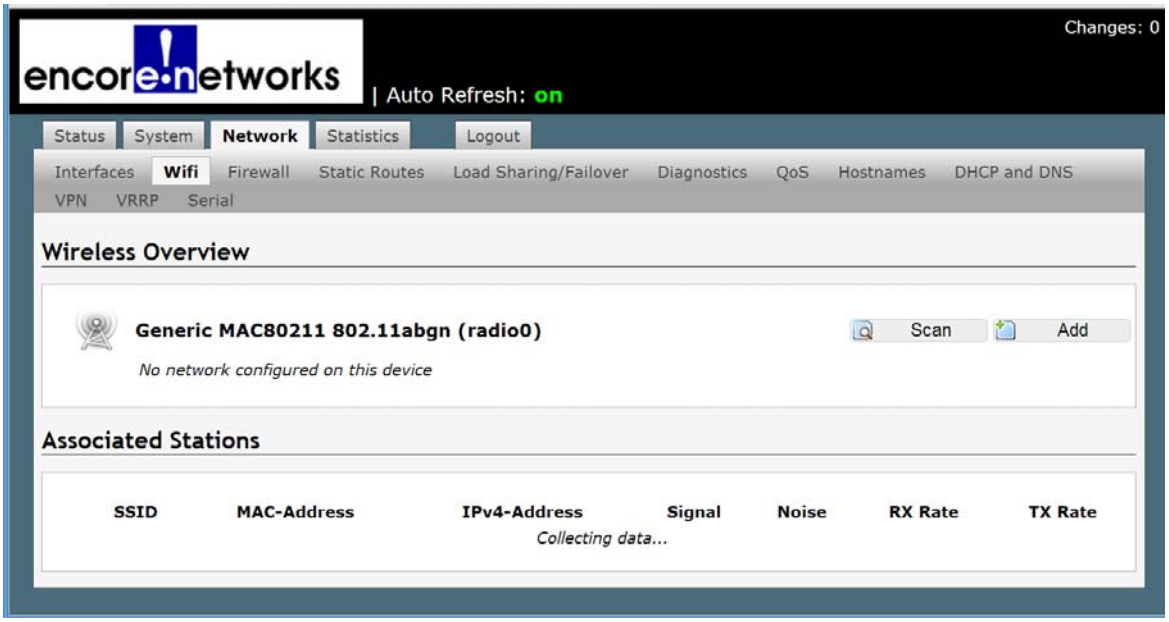
To configure the wireless card as a client, you must first identify the wireless access point that the wireless card will connect to. That access point must support the type of 802.11 wireless transmission that the EN-4000 supports (802.11a, 802.11b, 802.11n; or combined support for 802.11a+n). You must also know the password (and other credentials, if applicable) to log on to that access point.

1 On the EN-4000 Management System, select the **Network** tab; then select the **Wifi** tab.

❖ If the EN-4000 contains a wireless card, the Overview Screen for Wireless Configuration is displayed (Figure 11-14).

This screen provides basic information about the card's wireless specifications; it displays the MAC ID and supported versions of 802.11 (in Figure 11-14, **802.11abgn**). If the wireless card has already been configured, the display also lists the card's mode and related specifications.

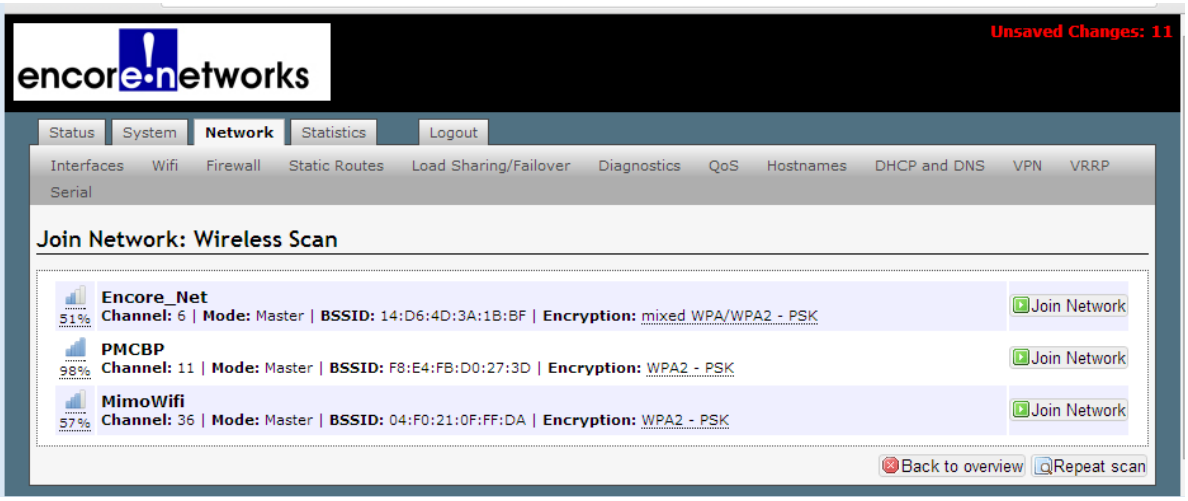
Figure 11-14. Overview Screen for Wireless Configuration



2 On the Overview Screen for Wireless Configuration, select the **Scan** button.

❖ The screen lists available wireless networks (Figure 11-15).

Figure 11-15. Available Wireless Networks

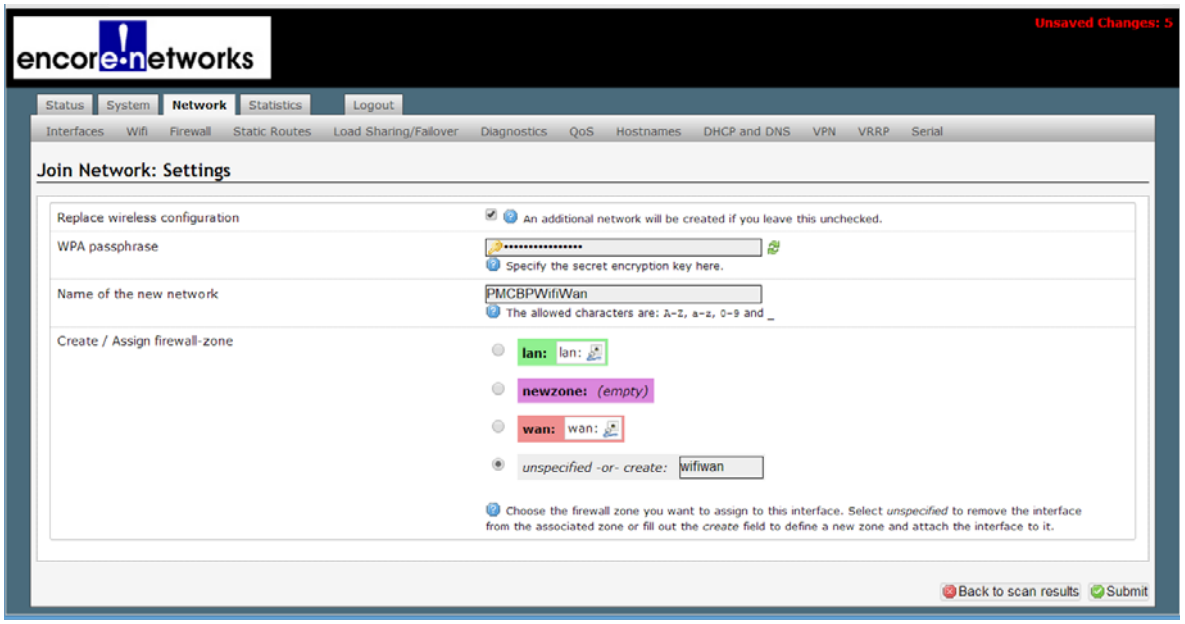


3 Select the **Join Network** button for the network you wish to join.

❖ The selected network requests log-in credentials (Figure 11-16).

Note: You should already have requested the password and other log-in information for the selected network.

Figure 11-16. Log-In Screen for a Wireless Network



4 Do the following:

a Make sure the box is checked to **Replace wireless configuration**.

b In the field for the **WPA passphrase**, type the password provided by the network.

c Specify the **Name of the new network**. This can be any unique name in your network. We recommend including the name of the network you selected in step 3 as part of this name.

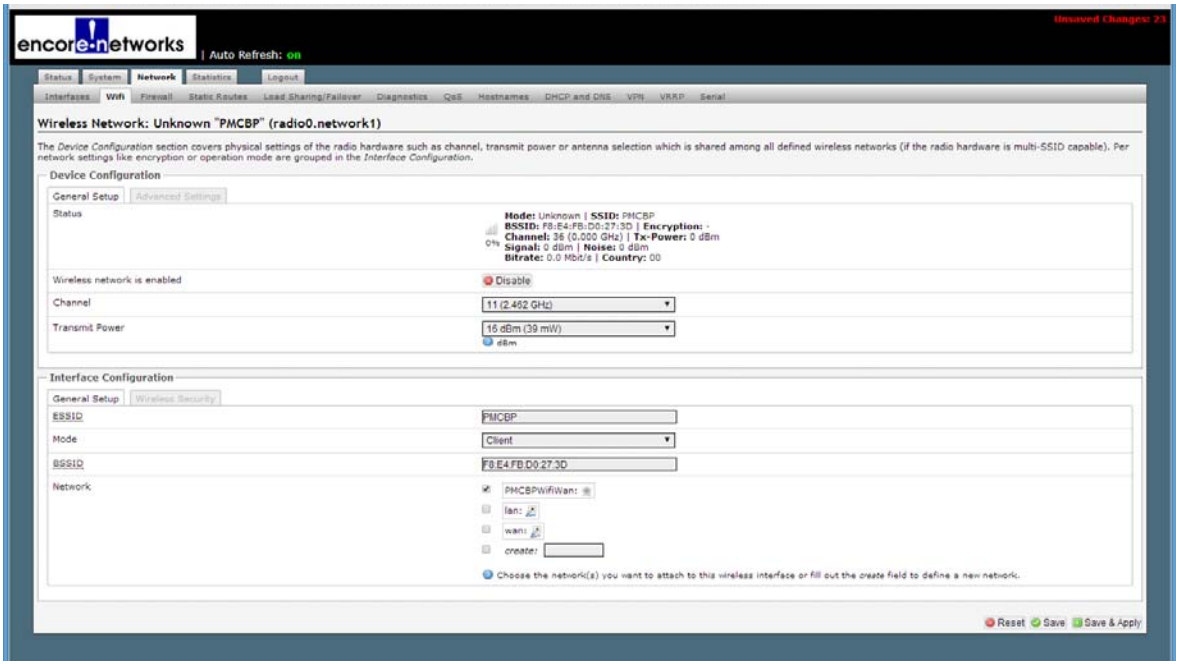
d In the list for **Create / Assign firewall zone**, select **unspecified or create**, and type a name for the set of firewall rules that will apply to packets from the selected wireless network.

e When all the information has been entered, select the **Submit** button (in the lower right corner of the screen).

❖ If your credentials are approved, the Wireless Network Configuration Screen is displayed (Figure 11-17).

Note: Under the heading **Interface Configuration** (in the lower half of the screen), the card's **Mode** as a wireless **Client** has automatically been specified.

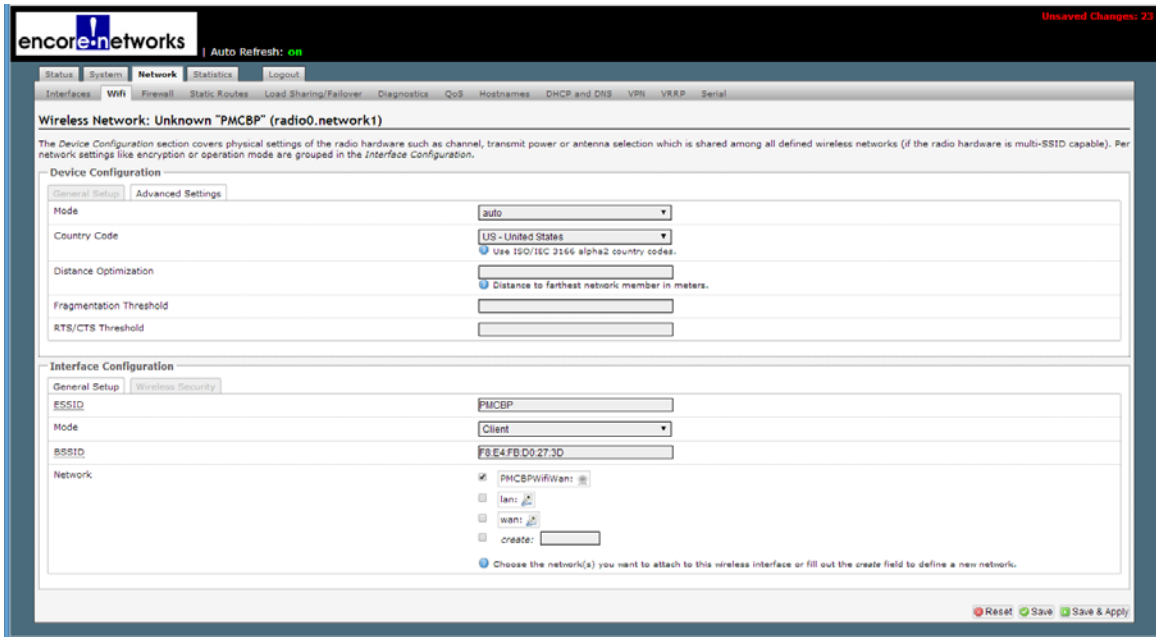
Figure 11-17. Wireless Network Configuration Screen



5 In the area for **Device Configuration**, select **Advanced Settings**.

❖ The screen displays applicable fields (Figure 11-18).

Figure 11-18. Wireless Network Configuration Screen, Advanced Settings


encore-networks
Auto Refresh: on
Unsaved Changes: 23
Status System Network Statistics Logout
Interfaces Wifi Firewall Static Routes Load Sharing/Failover Diagnostics QoS Hostnames DHCP and DNS VPN VRRP Serial
Wireless Network: Unknown "PMCBP" (radio0.network1)
The Device Configuration section covers physical settings of the radio hardware such as channel, transmit power or antenna selection which is shared among all defined wireless networks (if the radio hardware is multi-SSID capable). Per network settings like encryption or operation mode are grouped in the Interface Configuration.
Device Configuration
General Setup Advanced Settings
Mode
auto
Country Code
US - United States
Use ISO/IEC 3166 alpha2 country codes.
Distance Optimization
Distance to farthest network member in meters.
Fragmentation Threshold
RTS/CTS Threshold
Interface Configuration
General Setup Wireless Security
ESSID
PMCBP
Mode
Client
BSSID
F8:E4:FB:D0:27:3D
Network
PMCBPWifiWan:
lan:
wan:
create:
Choose the network(s) you want to attach to this wireless interface or fill out the create field to define a new network.
Reset Save Save & Apply

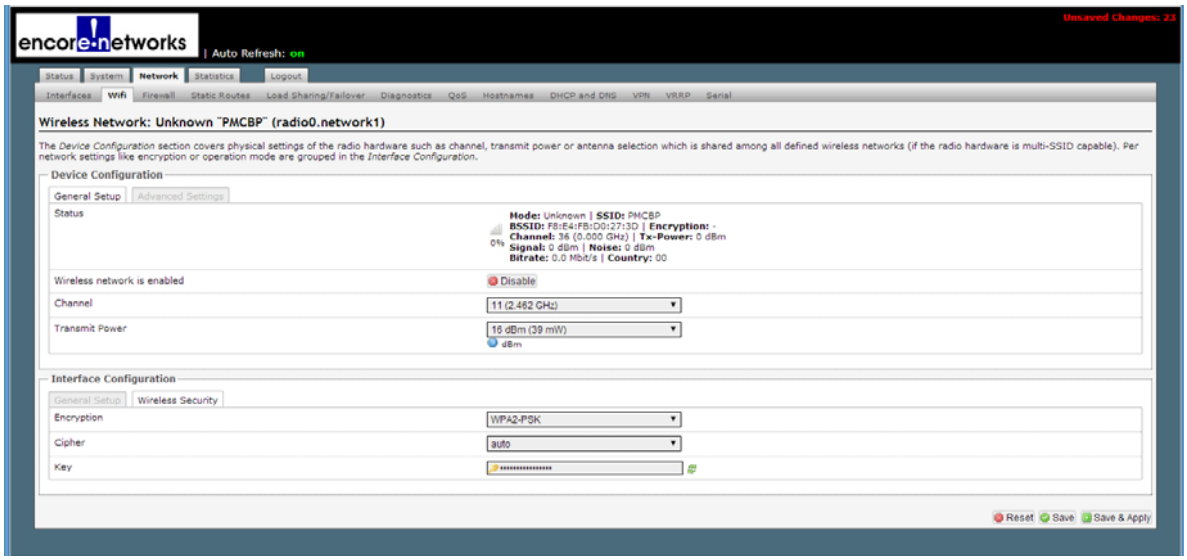
6 In the field for **Country Code**, select the arrow for the drop-down list. Then, in the drop-down list, select the country where the router is located, to comply with local regulations for frequencies, etc.

Note: All other fields were automatically populated with the proper values. You do not need to change them.

7 In the area for **Interface Configuration**, select **Wireless Security**.

❖ The screen displays applicable fields (Figure 11-19).

Figure 11-19. Wireless Network Configuration Screen, Wireless Security


encore-networks
Auto Refresh: on
Unsaved Changes: 23
Status System Network Statistics Logout
Interfaces Wifi Firewall Static Routes Load Sharing/Failover Diagnostics QoS Hostnames DHCP and DNS VPN VRRP Serial
Wireless Network: Unknown "PMCBP" (radio0.network1)
The Device Configuration section covers physical settings of the radio hardware such as channel, transmit power or antenna selection which is shared among all defined wireless networks (if the radio hardware is multi-SSID capable). Per network settings like encryption or operation mode are grouped in the Interface Configuration.
Device Configuration
General Setup Advanced Settings
Status
Mode: Unknown | SSID: PMCBP
BSSID: F8:E4:FB:D0:27:3D | Encryption: -
Channel: 36 (0.000 GHz) | Tx-Power: 0 dBm
Signal: 0 dBm | Noise: 0 dBm
Bitrate: 0.0 Mbit/s | Country: 00
0%
Wireless network is enabled
Disable
Channel
11 (2.462 GHz)
Transmit Power
16 dBm (39 mW)
dBm
Interface Configuration
General Setup Wireless Security
Encryption
WPA2-PSK
Cipher
auto
Key
Reset Save Save & Apply

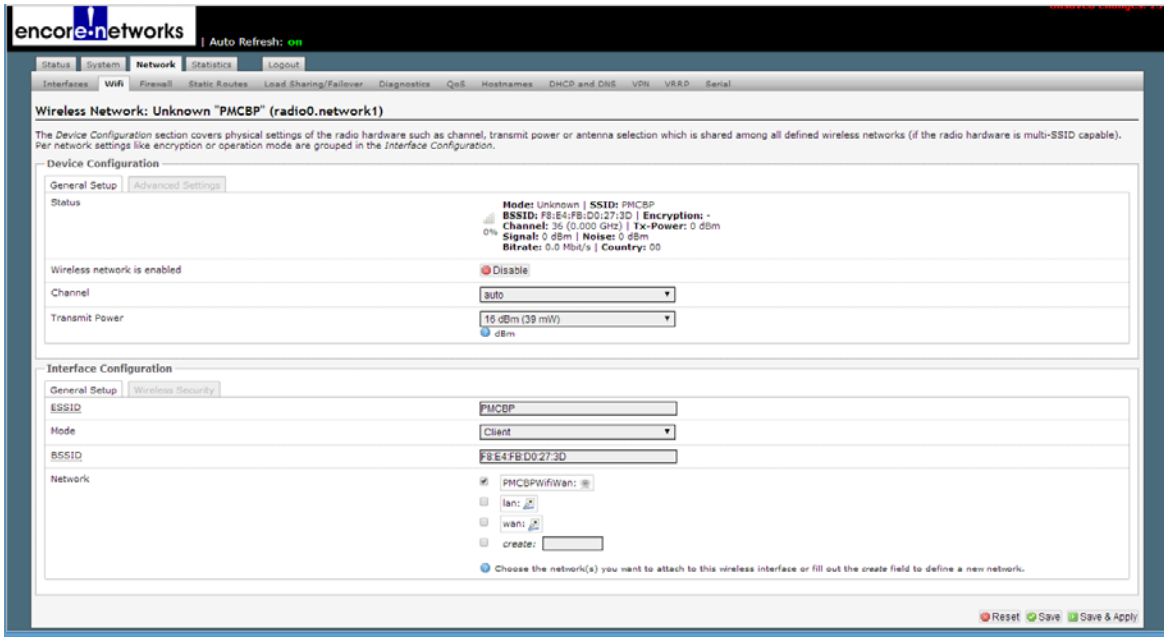
8 Set the **Encryption** to match the encryption used by the network you are connecting to.

9 Set the **Cipher** to match the cipher used by the network you are connecting to.

10 In the area for **Device Configuration**, select **General Settings**.

❖ The screen displays applicable fields (Figure 11-20).

Figure 11-20. Wireless Network Configuration Screen, General Device Settings


encore networks
Auto Refresh: on
Status System Network Statistics Logout
Interfaces Wifi Firewall Static Routes Load Sharing/Failover Diagnostics QoS Hostnames DHCP and DNS VPN VRRP Serial
Wireless Network: Unknown "PMCBP" (radio0.network1)
The Device Configuration section covers physical settings of the radio hardware such as channel, transmit power or antenna selection which is shared among all defined wireless networks (if the radio hardware is multi-SSID capable). Per network settings like encryption or operation mode are grouped in the Interface Configuration.
Device Configuration
General Setup Advanced Settings
Status
Mode: Unknown | SSID: PMCBP
BSSID: F8:E4:FB:D0:27:3D | Encryption: -
Channel: 36 (0.000 GHz) | Tx-Power: 0 dBm
Signal: 0 dBm | Noise: 0 dBm
Bitrate: 0.0 Mbit/s | Country: 00
Wireless network is enabled
Disable
Channel
auto
Transmit Power
16 dBm (39 mW)
dBm
Interface Configuration
General Setup Wireless Security
ESSID
PMCBP
Mode
Client
BSSID
F8:E4:FB:D0:27:3D
Network
PMCBPWifiWan:
lan:
wan:
create:
Choose the network(s) you want to attach to this wireless interface or fill out the create field to define a new network.
Reset Save Save & Apply

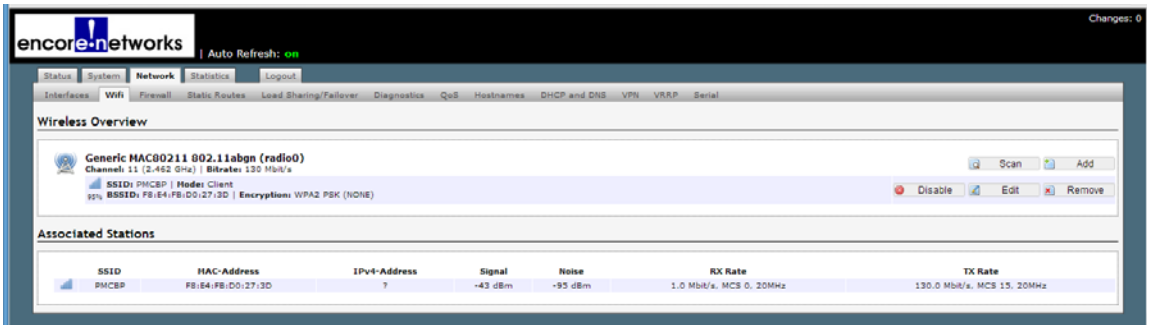
11 Set the **Channel** to **Auto**.

12 Set the **Transmit Power** to the highest value allowed in your region.

13 Select the **Save & Apply** button (in the lower right corner of the screen).

14 The EN-4000 is accepted as a wireless client, and the card's Wireless Overview screen is redisplayed, with updated information (Figure 11-21).

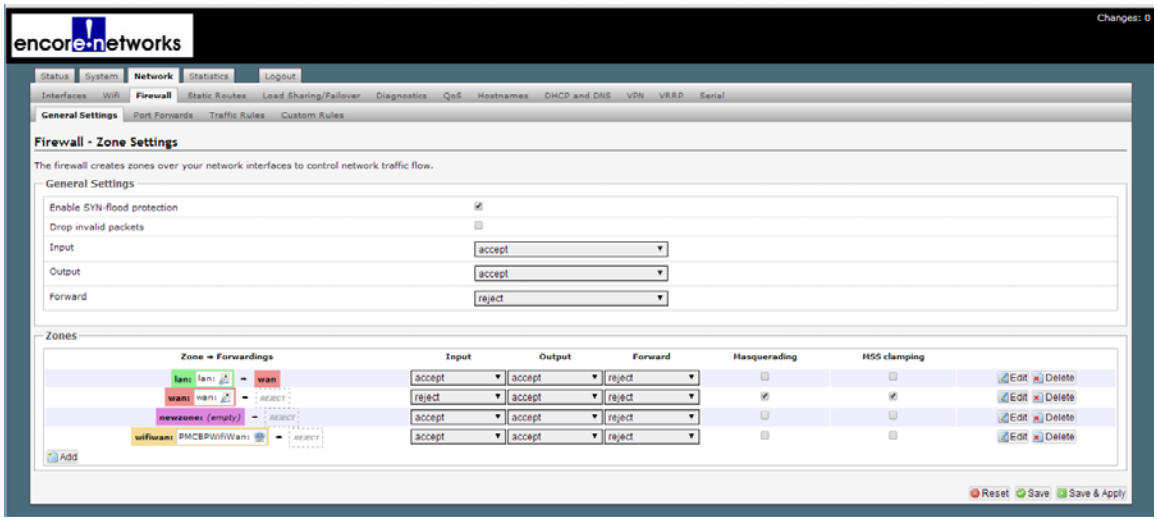
Figure 11-21. Completed Configuration as Wireless WAN Client


encore networks
Changes: 0
Auto Refresh: on
Status System Network Statistics Logout
Interfaces Wifi Firewall Static Routes Load Sharing/Failover Diagnostics QoS Hostnames DHCP and DNS VPN VRRP Serial
Wireless Overview
Generic MAC80211 802.11abgn (radio0)
Channel: 11 (2.462 GHz) | Bitrate: 130 Mbit/s
SSID: PMCBP | Mode: Client
BSSID: F8:E4:FB:D0:27:3D | Encryption: WPA2 PSK (NONE)
Scan Add
Disable Edit Remove
Associated Stations
SSID MAC-Address IPv4-Address Signal Noise RX Rate TX Rate
PMCBP F8:E4:FB:D0:27:3D ? -43 dBm -95 dBm 1.0 Mbit/s, MCS 0, 20MHz 130.0 Mbit/s, MCS 15, 20MHz

15 On the EN-4000 Management Screen, select the **Network** tab; then select the **Firewall** tab. If necessary, select the **General Settings** tab.

❖ The interface's Firewall Zone Settings Screen is displayed (Figure 11-22).

Figure 11-22. Firewall Zone Settings Screen

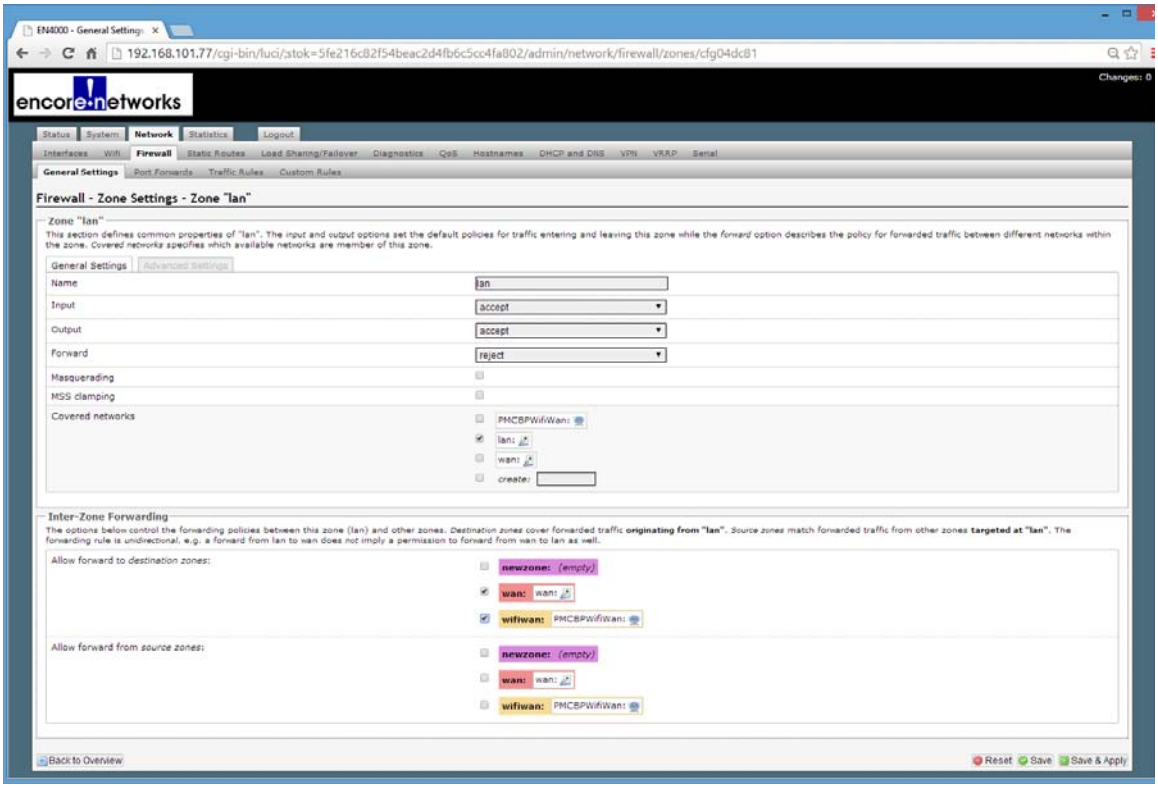

encore networks
Changes: 0
Status System Network Statistics Logout
Interfaces Wifi Firewall Static Routes Load Sharing/Failover Diagnostics QoS Hostnames DHCP and DNS VPN VRRP Serial
General Settings Port Forwards Traffic Rules Custom Rules
Firewall - Zone Settings
The firewall creates zones over your network interfaces to control network traffic flow.
General Settings
Enable SYN-flood protection
Drop invalid packets
Input accept
Output accept
Forward reject
Zones
Zone ⇒ Forwardings Input Output Forward Masquerading MSS clamping
lan: lan: ⇒ wan accept accept reject Edit Delete
wan: wan: ⇒ REJECT reject accept reject Edit Delete
newzone: (empty) ⇒ REJECT accept accept reject Edit Delete
wifiwan: PMCBPWifiWan: ⇒ REJECT accept accept reject Edit Delete
Add
Reset Save Save & Apply

Note: Firewall forwarding must be set up for each network that will be part of a failover set. (For an example of policies, weights, and measures used to configure failover priorities, see *Configuring a MultiWAN for the EN-4000*.)

16 In the area under **Zones**, in the column labeled **Zone => Forwarding**, select the **Edit** button in the row that starts with the label **LAN** (the first row in the list).

❖ The Firewall Zone Settings LAN Screen is displayed (Figure 11-23).

Figure 11-23. Firewall Zone Settings LAN Screen

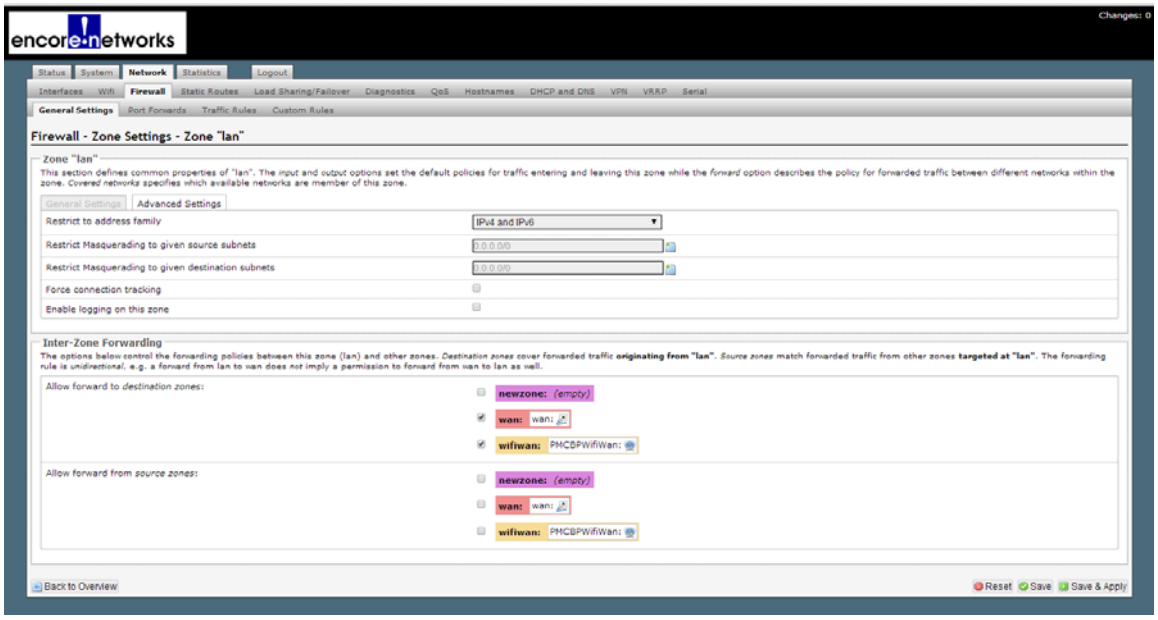


17 On that screen, make sure **LAN** is selected under **Covered Networks**, and make sure **WAN** and the new client network you created (**WIFIWAN** in this example) are selected under **Allow Forward to Destination Zones**.

18 On the Firewall Zone Settings LAN Screen, select **Advanced Settings**.

❖ The applicable fields are displayed.

Figure 11-24. Firewall Zone Settings LAN Screen, Advanced Settings


encore networks
Changes: 0
Status System Network Statistics Logout
Interfaces Wifi Firewall Static Routes Load Sharing/Failover Diagnostics QoS Hostnames DHCP and DNS VPN VRRP Serial
General Settings Port Forwards Traffic Rules Custom Rules
Firewall - Zone Settings - Zone "lan"
Zone "lan"
General Settings Advanced Settings
Restrict to address family
IPv4 and IPv6
Restrict Masquerading to given source subnets
Restrict Masquerading to given destination subnets
Force connection tracking
Enable logging on this zone
Inter-Zone Forwarding
Allow forward to destination zones:
newzone: (empty)
wan: wan:
wifiwan: PMCBPWifiWan:
Allow forward from source zones:
newzone: (empty)
wan: wan:
wifiwan: PMCBPWifiWan:
Back to Overview
Reset Save Save & Apply

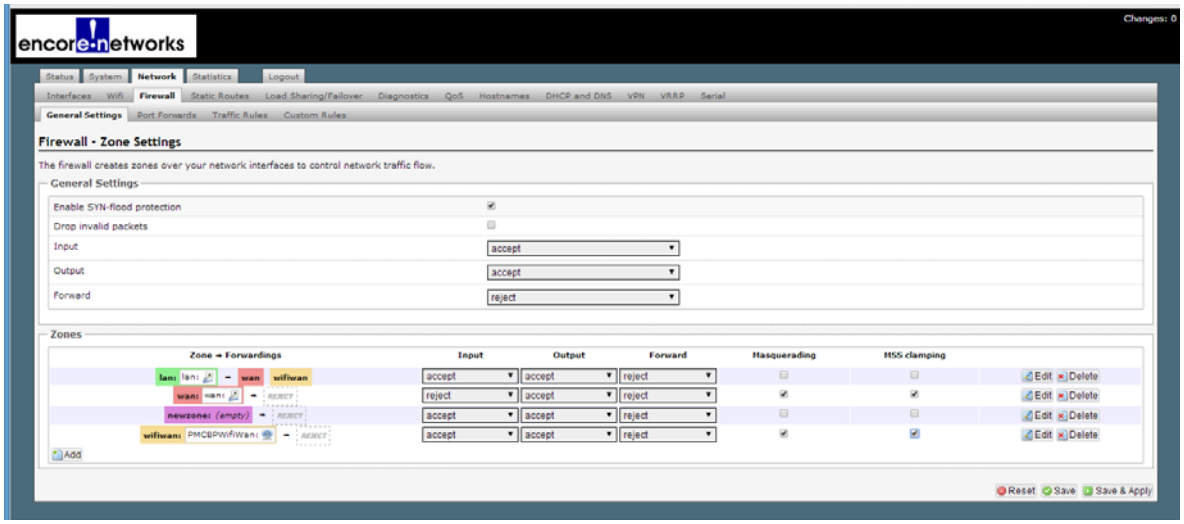
19 You can use this screen if you wish to restrict masquerading for specific source or destination IP addresses.

❖ Figure 11-24 does not use any rules to restrict masquerading.

20 On the Firewall Zone Settings LAN Screen, select **General Settings**.

❖ The applicable fields are displayed.

Figure 11-25. Firewall Zone Settings LAN Screen, General Settings


encore networks
Changes: 0
Status System Network Statistics Logout
Interfaces Wifi Firewall Static Routes Load Sharing/Failover Diagnostics QoS Hostnames DHCP and DNS VPN VRRP Serial
General Settings Port Forwards Traffic Rules Custom Rules
Firewall - Zone Settings
The firewall creates zones over your network interfaces to control network traffic flow.
General Settings
Enable SYN-flood protection
Drop invalid packets
Input accept
Output accept
Forward reject
Zones
Zone ⇒ Forwardings Input Output Forward Masquerading MSS clamping
lan: lan: ⇒ wan wifiwan accept accept reject Edit Delete
wan: wan: ⇒ REJECT reject accept reject Edit Delete
newzone: (empty) ⇒ REJECT accept accept reject Edit Delete
wifiwan: PMCBPWifiWan: ⇒ REJECT accept accept reject Edit Delete
Add
Reset Save Save & Apply

21 Make sure **Masquerading** and **MSS Clamping** are selected for the networks to which you forwarded firewall settings in step 17 (in this example, **WAN** and the new client network **WIFIWAN**).

22 Select the **Save & Apply** button.

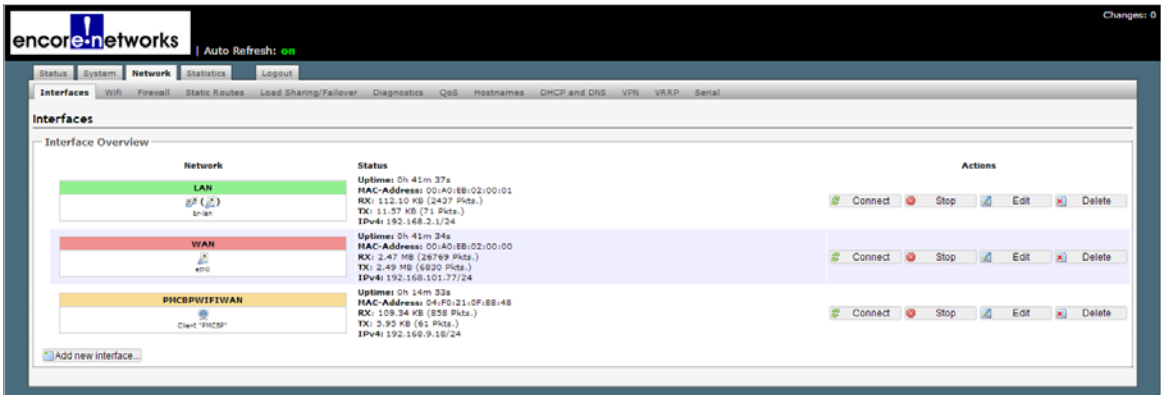
❖ The LAN's firewall rules are applied to the wireless WAN (the wireless card's wireless client interface).

23 On the EN-4000 Management Screen, again select the **Network** tab, then the **Interfaces** tab.

❖ Interfaces on the EN-4000 are redisplayed, with updated information (Figure 11-26). This includes the client interface that you just configured.

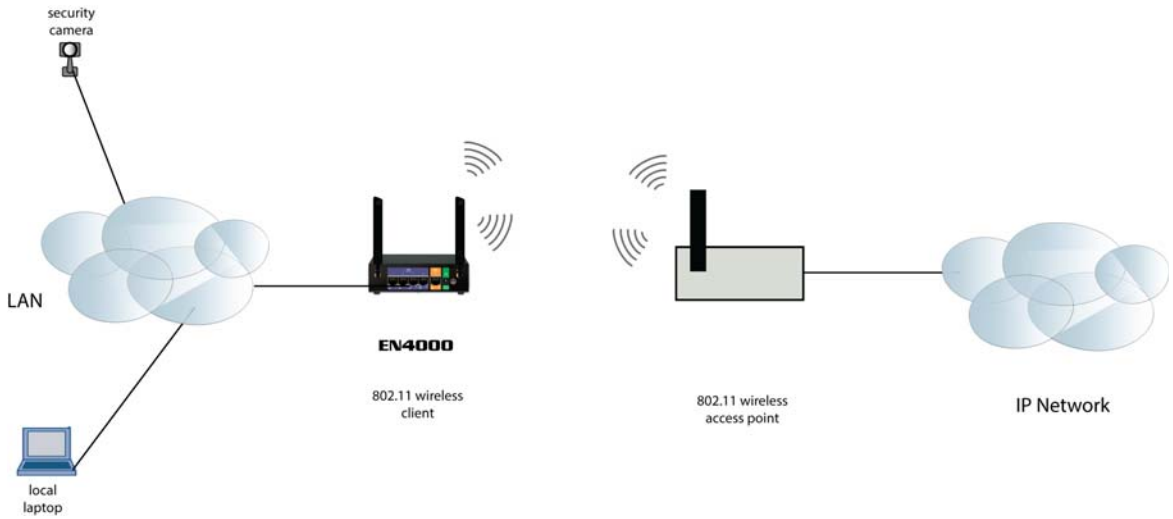
❖ Configuration of the wireless card as a wireless client is complete.

Figure 11-26. Interfaces on the EN-4000



Note: It is possible for other devices on the EN-4000's wired LAN to use the EN-4000 Wireless Client's connection to reach the internet (Figure 11-27).

Figure 11-27. Additional Devices on the LAN
Using the EN-4000 Wireless Client's Connection to the Internet



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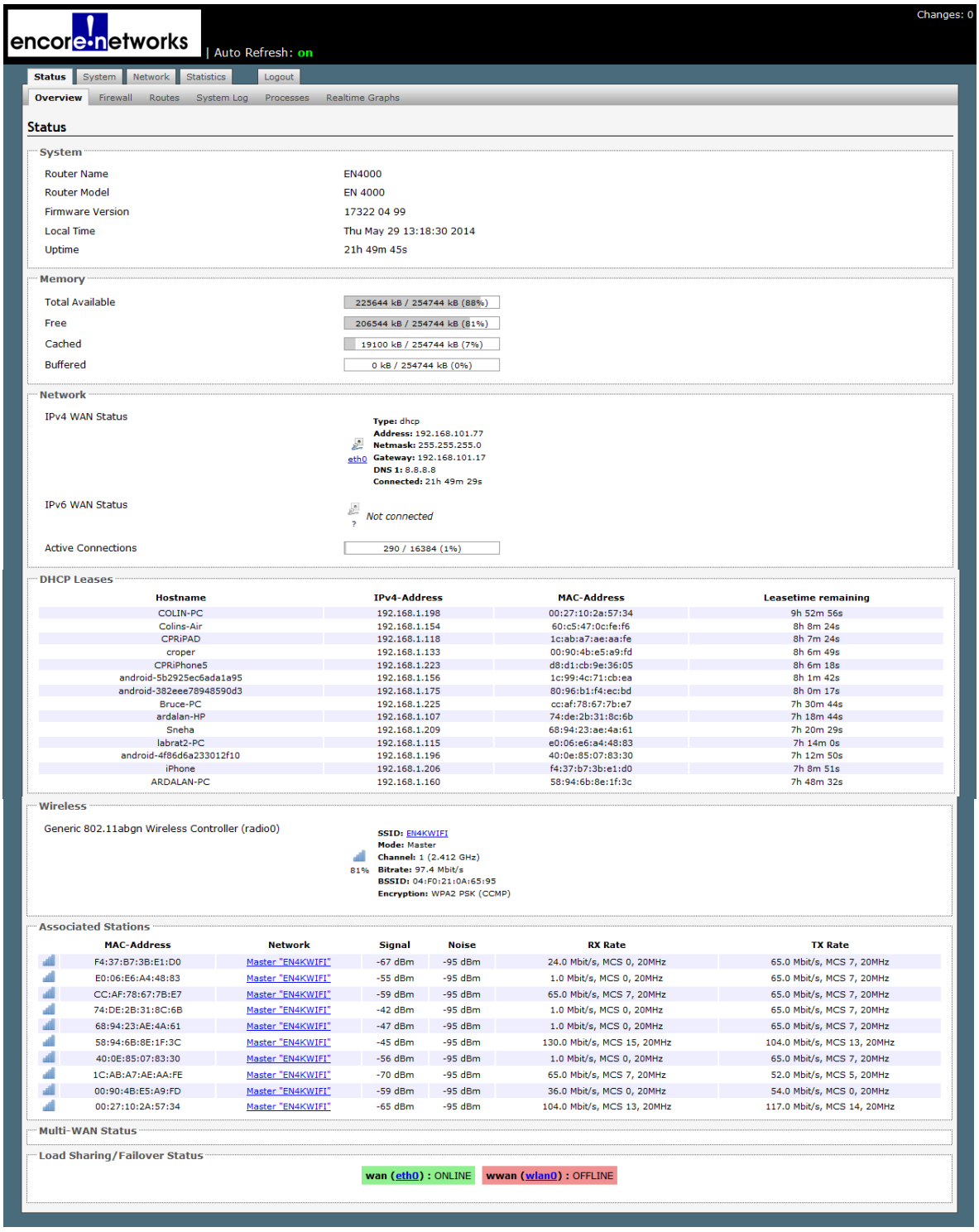
11.2 Checking the Status of the Wireless Card

Select the **Status** tab, then the **Overview** tab, to display the status for the EN-4000 (Figure 11-28). The **Wireless** heading and information are in the lower portion of the display.

Figure 11-28. EN-4000 Status


encore networks
Changes: 0
| Auto Refresh: on
Status
System
Network
Statistics
Logout
Overview
Firewall
Routes
System Log
Processes
Realtime Graphs
Status
System
Router Name EN4000
Router Model EN 4000
Firmware Version 17322 04 99
Local Time Thu May 29 13:18:30 2014
Uptime 21h 49m 45s
Memory
Total Available 225644 kB / 254744 kB (88%)
Free 206544 kB / 254744 kB (81%)
Cached 19100 kB / 254744 kB (7%)
Buffered 0 kB / 254744 kB (0%)
Network
IPv4 WAN Status
eth0
Type: dhcp
Address: 192.168.101.77
Netmask: 255.255.255.0
Gateway: 192.168.101.17
DNS 1: 8.8.8.8
Connected: 21h 49m 29s
IPv6 WAN Status
Not connected
Active Connections 290 / 16384 (1%)
DHCP Leases
Hostname IPv4-Address MAC-Address Leasetime remaining
COLIN-PC 192.168.1.198 00:27:10:2a:57:34 9h 52m 56s
Colins-Air 192.168.1.154 60:c5:47:0c:fe:f6 8h 8m 24s
CPRiPAD 192.168.1.118 1c:ab:a7:ae:aa:fe 8h 7m 24s
croper 192.168.1.133 00:90:4b:e5:a9:fd 8h 6m 49s
CPRiPhone5 192.168.1.223 d8:d1:cb:9e:36:05 8h 6m 18s
android-5b2925ec6ada1a95 192.168.1.156 1c:99:4c:71:cb:ea 8h 1m 42s
android-382eee78948590d3 192.168.1.175 80:96:b1:f4:ec:bd 8h 0m 17s
Bruce-PC 192.168.1.225 cc:af:78:67:7b:e7 7h 30m 44s
ardalan-HP 192.168.1.107 74:de:2b:31:8c:6b 7h 18m 44s
Sneha 192.168.1.209 68:94:23:ae:4a:61 7h 20m 29s
labrat2-PC 192.168.1.115 e0:06:e6:a4:48:83 7h 14m 0s
android-4f86d6a233012f10 192.168.1.196 40:0e:85:07:83:30 7h 12m 50s
iPhone 192.168.1.206 f4:37:b7:3b:e1:d0 7h 8m 51s
ARDALAN-PC 192.168.1.160 58:94:6b:8e:1f:3c 7h 48m 32s
Wireless
Generic 802.11abgn Wireless Controller (radio0)
81%
SSID: EN4KWIFI
Mode: Master
Channel: 1 (2.412 GHz)
Bitrate: 97.4 Mbit/s
BSSID: 04:F0:21:0A:65:95
Encryption: WPA2 PSK (CCMP)
Associated Stations
MAC-Address Network Signal Noise RX Rate TX Rate
F4:37:B7:3B:E1:D0 Master "EN4KWIFI" -67 dBm -95 dBm 24.0 Mbit/s, MCS 0, 20MHz 65.0 Mbit/s, MCS 7, 20MHz
E0:06:E6:A4:48:83 Master "EN4KWIFI" -55 dBm -95 dBm 1.0 Mbit/s, MCS 0, 20MHz 65.0 Mbit/s, MCS 7, 20MHz
CC:AF:78:67:7B:E7 Master "EN4KWIFI" -59 dBm -95 dBm 65.0 Mbit/s, MCS 7, 20MHz 65.0 Mbit/s, MCS 7, 20MHz
74:DE:2B:31:8C:6B Master "EN4KWIFI" -42 dBm -95 dBm 1.0 Mbit/s, MCS 0, 20MHz 65.0 Mbit/s, MCS 7, 20MHz
68:94:23:AE:4A:61 Master "EN4KWIFI" -47 dBm -95 dBm 1.0 Mbit/s, MCS 0, 20MHz 65.0 Mbit/s, MCS 7, 20MHz
58:94:6B:8E:1F:3C Master "EN4KWIFI" -45 dBm -95 dBm 130.0 Mbit/s, MCS 15, 20MHz 104.0 Mbit/s, MCS 13, 20MHz
40:0E:85:07:83:30 Master "EN4KWIFI" -56 dBm -95 dBm 1.0 Mbit/s, MCS 0, 20MHz 65.0 Mbit/s, MCS 7, 20MHz
1C:AB:A7:AE:AA:FE Master "EN4KWIFI" -70 dBm -95 dBm 65.0 Mbit/s, MCS 7, 20MHz 52.0 Mbit/s, MCS 5, 20MHz
00:90:4B:E5:A9:FD Master "EN4KWIFI" -59 dBm -95 dBm 36.0 Mbit/s, MCS 0, 20MHz 54.0 Mbit/s, MCS 0, 20MHz
00:27:10:2A:57:34 Master "EN4KWIFI" -65 dBm -95 dBm 104.0 Mbit/s, MCS 13, 20MHz 117.0 Mbit/s, MCS 14, 20MHz
Multi-WAN Status
Load Sharing/Failover Status
wan (eth0) : ONLINE
wwan (wlan0) : OFFLINE